DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 1.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-012926
Date Inspected: 02-Apr-2010

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: American Bridge/Fluor Enterprises, a JV

OSM Arrival Time: 900
OSM Departure Time: 1730
Location: Job Site

CWI Name: See Below

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Orthotropic Box Girders

Summary of Items Observed:

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the E1/E2, E2/E3 and E3/E4 field splices:

A). Welding of the Field Splice E3 to E4.
B). Fit-up of the Field Splices E3 to E4.
C). QC/UT of the Field Splice E1 to E2.

A) Field Splice E3/E4, WN: 3E/4E-D

The QAI observed Shielded Metal Arc Welding (SMAW) of the root pass performed by AB/F welding personnel Jordan Hazelaar ID-2135 and James Zhen ID-6001utilizing the Welding Procedure Specification (WPS) ABF-WPS-D15-1110A Rev. 1 during the Complete Joint Penetration (CJP) welding of the bottom plate splice identified as Weld Number (WN) 3E-4E-D. The WPS was also used by the Quality Control (QC) inspector Tom Pasqualone as a reference to verify the Direct Current Electrode Positive (DCEP) welding parameters and were verified by the QAI accordingly: 126 amps and 124 amps. At the conclusion of the visual weld inspection performed by Mr. Pasqualone no repairs were noted. Later in the shift Mr. Hazelaar commence the Submerged Arc Welding (SAW) process of the field splice utilizing the WPS ABF-WPS-D15-4042B-1 Rev. 0. The WPS was also used by the AB/F QC inspector as a refernece to perform QC verification of the DCEP welding parameters during the CJP groove welding of the bottom plate field splice. The QAI observed the QC inspector verifying the amperage and voltage and were noted as follows: 560 amps, 32 volts and with a travel speed measured at 381

mm/minute. The QC inspector also monitored the surface temperatures during the CJP welding and the following was observed and recorded by the QAI: the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. The SAW welding was completed during this shift.

B) Fit-up of the Field Splice E3/E4, WN: 3E-4E-C

The QAI observed the installation and fillet welding of the assembly gear fitting aids to align the side plates of Orthotropic Box Girders (OBG) E3 to E4 field splice (WN: 3E-4E-C). The fillet welding was performed by American Bridge/Fluor personnel Rick Clayborn ID-2773 utilizing the Sheilded Metal Arc Welding (SMAW) as per the Welding Procedure Specification (WPS) ABF-WPS-D15- F1200A Rev. 1. The WPS was also used as a reference by the QC inspector Bonifacio Daquinag to verify the Direct Current Electrode Positive (DCEP) welding parameters and preheat temperatures which were noted as 145 DC amps and a minimum temperature of 70 degrees fahrenheit. The assembly fit-up was completed during this shift. For additional information see QAI Observation and Summary Verification.

C) QC/UT of the Field Splice E1/E2, WN: 1E-2E-D

The QAI also observed the Ultrasonic Testing (UT) of the transverse CJP weld on bottom plate field splice identified as WN: 1E-2E-D. The testing was performed from the "B" side of the bottom plate splice by the QC technicians Jesse Cayabyab and James Cunningham utilizing a USM 35 a product manufactured by Krautkramer. The QAI observed the technicians perform the required shear wave scanning technique during the testing which was performed utilizing a 1" diameter used to perform base metal soundness and a .75 x .75 rectangular transducers used to perform the angle beam technique for weld soundness. The technicians performed the testing utilizing the longitudinal and transverse scanning techniques as per the UT Procedure identified as SE-UT-D1. 5-CT-100 Rev.4. The UT was completed during this scheduled shift and there appears to be approximately a total of 17 rejects. The technicians are preparing to perform the testing from the "A" side of the CJP joint.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector's and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The consumables utilized for the SAW and SMAW processes appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift was not completed, excepted as noted above, appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter, Tempilstik Temperature indicators and a USN 60 Ultrasonic instrument.

The QAI also verified the assembly fit-up and alignment of the following field splices: WN's: 2E-3E-E, 3E-4E-C and 3E-4E-E. At the conclusion of the verification, the QAI noted misalignments that do not comply with the contract documents and generated Incident Reports (TL-15) regarding this issue.

The digital photographs on page 3 of this report, illustrates the work observed during this scheduled shift.

WELDING INSPECTION REPORT

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Summary of Conversations:

There were no pertinent conversations discussed in regards to the project except as noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer